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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,340	07/26/2001	Hiroyuki Sugiyama	35.C15615	5667

5514 7590 03/26/2004

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NEW YORK, NY 10112

EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 03/26/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/912,340

Applicant(s)

SUGIYAMA ET AL. *cn*

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 11-18 is/are pending in the application.
- 4a) Of the above claim(s) 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/17/03 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Election/Restrictions***

3. Claims 16-18 continue to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 8.

### ***Claim Rejections - 35 USC § 102***

4. Claims 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Welbourn et al 5,262,000.

Regarding Claim(s) 11, Welbourn discloses a method comprising: forming a shape of a movable member (integral layers 6, 7 and 9 in Fig. 6) on a device substrate 1 by a dry etching method of utilizing a plasma gas (see col. 4, lines 18-26); and removing a right-angled part (portion of layer 6) and an acute-angled part (portion of layer 9) of an edge of the movable

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member (see sequence of Figs. 4-5). The integral layers 6, 7, 9 are read as the “movable member” because the layers act together to move in an up and down deflecting manner in an electrical switch configuration (see col. 1, lines 10+).

With respect to the process steps being drawn to a “liquid discharge head”, or any of the elements associated with a liquid discharge head in the art, i.e. “liquid flow path”, “bubble generating region”, “discharge energy generating device”, and a “discharge port”, these limitations recited in the preamble of the claims are intended use limitations directed to the liquid discharge head and have not been given patentable weight since the body of the claims do not depend upon the preamble for completeness and the process steps are able to stand alone. *In re Hirao*, 535 F.2d 67 190 USPQ 15 (CCPA 1976). It is noted that if the claim were amended such that the product of a “liquid discharge head”, or anyone of the associated elements of the liquid discharge head mentioned above, were to be recited in the body of the claims, the body of the claims would clearly depend upon the preamble for completeness and would then appear to avoid Welbourn.

Regarding Claim(s) 12 and 13, Welbourn shows that the removal step also includes the edge, or a surface (on layer 9 in Fig. 6) extending from the edge of the movable member, to be chamfered or curved (on either side of the opening of layer 9).

Regarding Claim(s) 14, Welbourn teaches that the movable member is etched by a soaking solution of phosphoric acid (see col. 4, lines 59-63).

***Claim Rejections - 35 USC § 103***

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welbourn et al in view of Burns et al 4,684,436.

Welbourn discloses the claimed manufacturing method as relied upon above. Welbourn does not mention that removal occurs by radiating laser light.

Burns suggests that alternatives to either chemical or dry etching include radiating laser light (see col. 1, lines 16+) to achieve removal of a specified portion of material in a member.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted Burns' etching process of radiating laser light, for Welbourn's chemical etching process of utilizing an acid, to positively accomplish removing a portion of the movable member, i.e. removing the right-angle part and acute-angled part of the movable member.

***Response to Arguments***

6. Applicant's arguments with respect to claims 11-15 have been considered but are moot in view of the new ground(s) of rejection set forth above.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

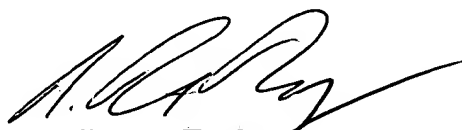
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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599.

The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**A. Dexter Tugbang**  
**Primary Examiner**  
**Art Unit 3729**

March 19, 2004